

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization  
International Bureau



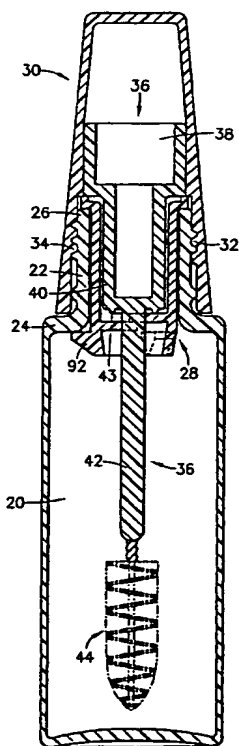
(43) International Publication Date  
26 April 2001 (26.04.2001)

(10) International Publication Number  
PCT WO 01/28383 A1

- (51) International Patent Classification<sup>6</sup>: A45D 40/26 (74) Agent: JOEL, Richard, A.; 496 Kinderkamack Road, Oradell, NJ 07649 (US).
- (21) International Application Number: PCT/US98/26633
- (22) International Filing Date: 14 December 1998 (14.12.1998)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:  
08/990,977 15 December 1997 (15.12.1997) US  
09/070,583 30 April 1998 (30.04.1998) US
- (71) Applicant and  
(72) Inventor: CHANG, Charles [US/US]; 55 Westview Road, Wayne, NJ 07470 (US).
- (81) Designated States (*national*): AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW.
- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).
- Published:  
— With international search report.

[Continued on next page]

(54) Title: MASCARA CONTAINER AND APPLICATOR



(57) Abstract: A container and dispensing device for mascara has a small bottle (10) with an externally threaded neck (14) of reduced diameter into which a moulded plastic, one-piece separator member (30) is pressed. The device has an applicator screw cap (12) which screws onto the bottle neck (14) and which has an applicator rod (22) depending from an intermediate transverse sealing wall. The applicator rod (22) projects from the bottom of the screw cap (12), being surrounded by the walls of the separator member (30), and carries a brush (26) for disposition in the bottle (10). Above the bottom end of the separator member (30), is a doctor blade (32) which normally surrounds the junction of the brush (26) and the applicator rod (22). The doctor blade (32) has an annular sealing bead (36) which seals against the sealing wall of the screw cap (12), whereby the separator member (30) is sealed and maintains the applicator rod (22) in a clean condition. The orifice (46) of the doctor blade (32) can have numerous different configurations to effect different wiping effects on the brush (26) as the latter is withdrawn for use.

WO 01/28383 A1

WO 01/28383 A1



*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

## **MASCARA CONTAINER AND APPLICATOR**

### **DESCRIPTION OF THE PREFERRED EMBODIMENTS**

Referring first to FIG. 1, the present improved mascara container and applicator as shown comprises a small bottle or vial 20 which can be of molded plastic construction, having  
5 an externally threaded neck 22 of reduced diameter which forms an internal shoulder 24. The bottle 20 has a top sealing land or rim portion 26 which presents a sealing surface for engagement with a cup-shaped shroud 28 shortly to be described.

On the bottle 20 there is a molded plastic screw cap applicator assemblage designated generally by the numeral 30, such assemblage having a body portion 32 provided with  
10 internal threads 34 for engagement with the screw threads of the bottle neck 22. The body 32 of the screw cap assemblage 30 has an internal annular sealing surface provided by a molded plastic applicator rod insert designated generally by the number 36, which insert is fitted into the cap body 32.

As seen in FIG. 1, the applicator rod insert 36 has three different-diameter sections or portions, a large diameter portion 38 which fits into the body 32 of the assemblage 30, an  
15 intermediate-diameter portion 40 and a small diameter portion 42. The large diameter portion 38 makes a shoulder with the intermediate-diameter portion 40, and such shoulder constitutes the above-mentioned internal annular sealing surface of the screw cap assemblage 30. The rod portion 42 is seen to extend downward from the applicator body 32, as shown in FIG.  
20 1.

Also, the intermediate-diameter portion 40 makes a shoulder with the lower, small-diameter portion 42 of the rod assemblage 36, on which shoulder a circular sealing bead 43 is provided to seal with webs 74 and 76 of FIG. 7 described later. It will be understood that the rod assemblage 36 is rigidly affixed in the cap body 32.

25 The intermediate portion 40 of the applicator rod assemblage 36 forms, with the cap

body 32, an annular cavity which is occupied by the reduced neck 22 of the bottle 20.

The lower portion 42 of the applicator rod 36 carries at its lower extremity an applicator brush 44 constituted of a twisted wire and bristle assemblage generally known in the art, which forms a junction at such extremity with the plastic of the rod. However, in accordance with the present invention, the brush bristles can advantageously have a diameter in excess of .004" so that it can have the double function of applying the mascara and also combing the user's eyelashes, as will be later brought out.

Fixedly carried in the bottle neck 32 is the shroud or separator member 28 shown clearly in FIG. 2. The member 32 is cupshaped and constituted of resilient plastic, which can be polyester elastomer for example, or other solvent-resistant composition. The member 28 encloses the intermediate portion 40 of the applicator assemblage 36, and has an annular sealing top flange 46 provided with an annular bead 41 and an under surface 47 which seals with the rim portion 26 of the bottle neck 22, and also with the annular shoulder between the portion 38 and 40 of the applicator rod assemblage 36. The top rim of the separator member 28 may be thought of as configured somewhat like a dish, or in other words, dished or inside recessed. The sealing occurs at the upper flange surface 45 and the under or lower lip or flange surface 47. Seals are thus effected between the bottle neck rim 26, the flange 46 of the separator member 28, the portion 38 of the applicator 40. Thus the applicator rod functions as a stopper for the bottle 20.

In accordance with the present invention the separator member 28 has novel and unique doctor means adapted to control the amount of cosmetic or mascara substance that is to be withdrawn by the brush 44. In FIGS. 1-3 such means comprises a pair of overlapping C-shaped doctor webs 48 and 50 which are preferably integral with the shroud 28 and connected thereby by living hinges 52 and 54 respectively. The web 50 at its ends overlaps the ends of the web 48, and both webs can be flexed upwardly as seen in FIG. 4, when the

brush 44 is being withdrawn from the bottle 20. An accurate control of the amount of mascara substance being deposited on the brush 44 and withdrawn from the bottle 20 is thus had. The webs 48 and 50 are shown in FIGS. 1-4 as being disposed at slightly different levels in the shroud 28. However, the webs can also be located at the same level or in the same plane, as shown in FIG. 11. In this figure, the webs 56 and 58 are co-planar, but their adjoining edges are undercut at the location 59, so that they can interfit with each other. The webs 56 and 58 have hinges 57 and 59 respectively. This arrangement provides a closure in conjunction with the applicator rod 42, just as is the case with the webs 48 and 50.

Alternative doctoring means are illustrated in FIGS. 5-10, which are usable either with or without the displaceable webs of FIGS. 1-4 and 11.

In FIGS. 5 and 6, the shroud 62 has a bottom wall constituted of two sector-shaped portions 64 and 66 that function as wiper webs, being connected to the lower extremity of the shroud by hinges 68 and 70 so that they can be swung upward under the action of removal of the applicator brush 44, just as is shown in FIG. 4. These figures illustrate an important feature of the invention whereby the brush 44 can be used as a comb, as well as an applicator.

As shown in FIG. 6, spaces 65 and 67 exist between side edges of the webs 64, 66 and the walls of the shroud 62. In FIG. 10 a space 89 exists between the end edges of the web 88 and the walls of the shroud 86. Considering the brush 44 as having stiff bristles, preferably thicker than 0.0004" in diameter when the applicator 30 is withdrawn from the container having either the shroud 62 of FIG. 6 or the shroud 86 of FIG. 9, the spaces 65, 67, or 89 will allow more of the mascara product to remain on the brush 44. But under the wiping action of the webs 65, 66 or 88 other portions of the brush 44 can be relatively free of the mascara product and can be advantageously used in the manner of a comb, to brush or comb product that has just been applied by the user. This represents an important feature of the invention. Actually the portion of the brush 44 which is wiped can carry very little of

the product. Bristles in these "clean" areas can thus be used as combs, to comb the eyelashes after the mascara has been applied. Presently, consumers need to either use a separate comb for this procedure, or to wipe off product from the bristles by scraping the brush on the bottle rim. This latter makes the bottleneck contaminated, and the product flows onto the threads, rendering them sticky which adversely affects the opening and closing of the bottle. As stated above, bristles having a thickness of 0.004" or more can be used to provide a good combing action.

In FIG. 5 the shroud 62 has a dished or inside-relieved top rim 63 which may be thought of as an annular bead portion of the flange; the groove 61 of the rim has a concave, annular surface. Referring to FIGS. 7 and 8, doctor webs 74 and 76 are shown, having under-cut interfitting edges and being connected by hinges 78 and 80 to the shroud 82. The shroud 82 also has a third flexible web 83 at its lower extremity, connected to the shroud by a living hinge 84.

FIGS. 9 and 10 show a shroud 86 having a single flexible web 88 which is connected to the shroud 86 by a hinge 90. The web 88 is C-shaped as seen in FIG. 10, extending through an arc of more than 180 degrees. The top flange of the shroud 86 is seen to have a concave surface seen to have a concave surfaced shallow groove 93, and the outermost portion of the flange can be considered as an annular sealing bead.

The separator members or shrouds in the various figures have exterior sloped lugs or wings labelled respectively 92, 94, 96, 98 and 100 which cam inward when the members are forced into the bottle necks, such lugs expanding against the bottle shoulder 24 to retain the members in the bottle, as will be understood.

FIG. 12 illustrates an improved assemblage according to the invention, wherein the intermediate portion 102 of the shroud member has doctoring webs 104 and 106 with hinge portions 108 and 110. The webs 104 and 106 normally closely hug the stem or rod 42 of the

applicator, and when in such position they are engageable by the sealing bead 43 of the applicator. Moreover, since the webs are not fixed but instead movable by virtue of their hinges 108 and 110, they can yield a slight amount and conform to the contour of the bead 43. This makes for a softer and more effective seal of the contents of the bottle 20.

5 Referring to FIGS. 6 and 10 of the drawings it will be seen that the shapes of the webs 64 and 66 in FIG. 6 or the web 88 in FIG. 10 govern the size and shape of the spaces which exist between the inside walls of the shroud 62 or 86 and the webs. These spaces allow for the passage of some extra mascara when the brush-applicator is being withdrawn, and thus a control is had by the masking effect of the webs, of the amount of product on the brush 44.

10 Also, the stiffness or rigidity of the webs as well as the shapes in the various embodiments of the invention will govern the amount of mascara that is being carried out by the applicator, and this applies as well to the thickness and stiffness of the bristles making up the brush 44. Bristles of 0.005" and more in diameter can be used, even to the point of providing a combing action. In the embodiment of FIG. 6, for example, thick bristles can  
15 be sued with a thinner product to provide different results. Also, more product will be removed on the applicator where the webs 64 and 66 do not wipe the brush, as along the end portion of the webs 64 and 66.

In the embodiment of FIGS. 1-3 where the webs overlap each other, the applicator rod 42 can be wiped cleaner than in the embodiment of FIGS. 8 and 10.

20 It will now be seen from the foregoing that we have provided an improved and simplified dispenser and container for mascara and like cosmetic substances, which has few components that are arranged in a small and compact package. The applicator portion is provided with improved doctoring and sealing means which give an excellent control of the deposition of the mascara or other substance on the brush and better sealing of the container  
25 contents. The brush can have "clean" areas to effect a combing action, and "product

carrying" areas for the application of the mascara to the eyelashes. The screw cap has a large expanse that is disposed above the transverse sealing wall, enabling an easy and comfortable grip to be had when applying the mascara. The various components are readily economically fabricated and assembled, making for a low cost package.

5           The special top rim configurations of the various separator members reduce the amount of product contamination in the cap and threads, and keep the bottle cleaner. The enlargement of the mount of the separator member enables the user to replace the brush in the bottle more easily, without touching or scraping the outside of the member. These are important conveniences that a user will enjoy when using the dispenser of this invention.

10           In another embodiment of the invention illustrated in FIGS. 1A-8A, the numbers have been repeated but refer only to the elements shown in FIGS. 1A-8A.

          Referring first to FIG. 1A, the improved mascara dispensing device of the invention comprises essentially two main parts, a container or bottle part indicated generally by the number 10, and a removable screw applicator part which is indicated generally by the  
15           numeral 12. The bottle part 10 is adapted to contain mascara or similar cosmetic substance, indicated by the broken line representation in FIG. 1A and could be conveniently fabricated as a metal component, with external threads on a reduced-diameter neck portion 14. By virtue of the smaller diameter of the neck portion 14 there is formed in the bottle 10 an annular internal should 16, for purposes to be later described.

20           The applicator screw cap 12 is adapted to be screwed onto the threaded neck portion 14 of the bottle 10, and for this purpose the applicator cap 12 has a plastic insert member 18, hereinafter also referred to as an applicator body, such body having internal screw threads suitable for cooperation with the threads of the bottle neck 14. The applicator screw cap 12 further comprises an outer metal jacket 19 which encloses the body 18.

25           The applicator body 18 has a transverse sealing wall 20 which is disposed below the



midpoint of the top and bottom of the screw cap 12, as clearly seen in FIG. 1A, and above the internal screw threads thereof.

The applicator body 18 also has a depending applicator rod 22 which is preferably a solid cylinder, having a cylindrical side surface and a bottom end wall. The rod 22 extends  
5 downward from the transverse sealing wall 20, and the upper half portion of the rod 22 forms an annular cavity 24 in the underside of the screw cap body 18, which cavity 24 is occupied by the threaded, reduced-diameter neck 14 of the bottle 10.

The lower half portion of the applicator rod 22 projects from the bottom of the screw cap body 18 and carries at its lower extremity an applicator brush 26 that forms a junction 28  
10 with the rod 22, as seen in FIG. 1A.

The invention provides a unique, cup-shaped one-piece molded plastic separator member 30, FIGS. 1A and 3A, which extends through and is carried by the reduced neck 14 of the bottle 10, such separator member enclosing and surrounding the lower projecting half portion of the applicator rod 22. The separator member 30 performs important sealing and  
15 other functions, as will be brought out below.

The separator member 30 has a transverse bottom wall containing an opening forming an annular doctor blade 32 which surrounds the junction 28 of the screw cap applicator 12, such junction being the separation point between the brush 26 and the rod 22. The doctor blade 32 controls the amount of cosmetic substance that is to be withdrawn by the brush 26.  
20 The separator member 30 also has a depending annular skirt 34 that projects downward from the doctor blade 32, the function of which is later described.

One of the important sealing functions of the separator member 30 is to keep the applicator rod 22 clean and free of cosmetic substance, and in accomplishing this the bottom wall containing the doctor blade 32 is provided with an annular sealing bead 36 which  
25 engages and seals against the bottom end or extremity surface of the rod 22 when the

applicator cap 12 is threaded onto the bottle 10, all as shown in FIG. 1A.

Also, the separator member 30 has an upper lip or rim portion 38 that is engageable with the seals with the transverse sealing wall 20 of the screw cap body 18 of the applicator. The rim 38 has a flange portion 40 which engages the rim of the reduced neck 14 of the bottle 10, thereby to effectuate a seal therewith.

It will now be understood that with the above construction the top rim 38 of the separator member 30 constitutes a seal that is located between the transverse wall 20 of the screw cap body 18 and the top rim of the bottle neck 14, and that the sealing bead 36 of the separator member 30 seals against the bottom extremity of the applicator rod 22. The applicator rod is thus effectively enclosed by the separator member 30 and is kept away from the cosmetic substance in the bottle 10.

Retention of the separator member 30 in the bottle neck 14 is effected by a plurality of resilient wing formations 42 projecting from the exterior of the member 30 at points midway of the top and bottom thereof, said wings having camming surfaces 44 by which the wings can be forced into a flat shape and through the neck 14 of the bottle when the separator member 30 is forcibly pushed through the neck 14, thereby to enable the wings to engage with the internal shoulder 16 of the bottle.

According to the invention, the doctor blade 32 of the separator member 30 can have various different configurations at its inner periphery, to effect different kinds of control of the cosmetic substance which will be carried by the brush 26. In FIG. 4A the inner periphery 46 of the doctor blade 32 has multiple fine scallops for engagement by the brush 26.

In FIG. 5A, the inner periphery 50 of the doctor blade 52 has a serrated configuration. In FIG. 6A, the inner periphery 54 of the doctor blade 56 has a scalloped configuration. In FIG. 7A, the inner periphery 58 of the doctor blade 60 has a star-shaped configuration. And in FIG. 8A, the inner periphery 62 of the doctor blade 64 has a square configuration. In each

of FIGS 4A-8A the annular sealing beads which are on the doctor blades are indicated by the numeral 36.

The depending skirt 34 on the separator member 30 fosters retention of the doctored mascara with it so that the bristles of the brush 26 are drawn through the product tunnel or passage, coating the tuft of the brush even when the mascara is nearly exhausted from the lower portion of the bottle 10.

It will now be seen from the foregoing that we have provided an improved and simplified dispenser for mascara and like cosmetic substances, which has few components that are arranged in a small and compact package. The applicator screw cap has a large expanse that is disposed above the transverse sealing wall 20, enabling an easy and comfortable grip to be had when applying the mascara. The various components are readily economically fabricated and assembled, making for a low cost package.

Each and every one of the appended claims defines an aspect of the invention which is complete in and of itself, separate and distinct from all the others, and accordingly it is intended that each claim be treated in this manner when examined in the light of the prior art devices in any determination of novelty or validity.

Variation and modifications are possible without departing from the spirit of the invention, and portions of the improvement can be used without others.

### **CROSS REFERENCES TO RELATED APPLICATIONS**

U.S. Application Serial No. 08/714, 200 filed September 16, 1996 now U.S. Patent 5,765,574 entitled SAMPLER DEVICE FOR MASCARA AND OTHER COSMETIC SUBSTANCES, having a common ownership with this application. This application is based  
5 on and claims priority of U.S. Application Serial No. 08/990,977 filed December 15, 1997, entitled MASCARA CONTAINER AND DISPENSER, and U.S. Application Serial No. 09/070,583 filed April 30, 1998 entitled MASCARA CONTAINER AND APPLICATOR

### **BACKGROUND OF THE INVENTION**

#### **FIELD OF THE INVENTION**

10 This inventions relates to devices for containing and dispensing mascara and like cosmetics.

**DESCRIPTION OF THE RELATED ART INCLUDING INFORMATION****DISCLOSED UNDER 37 CRF §§1.97-1.99**

U.S. Patent No. 5,324,128 dated June 28, 1994 shows a spill-preventing cosmetic applicator wherein a small bottle carries mascara or similar cosmetic substance. By a series  
5 of seals and small passages it is claimed that leakage and spillage of the bottle contents are prevented. However, multiple components of somewhat complicated shapes are involved, with the result that labor in assemblage becomes significant, as well as component costs, and maximum economy of manufacture is difficult to obtain.

The disclosure of U.S. Patent 4,470,425 involves a mascara container and applicator  
10 wherein multiple wiper devices are provided, one for the applicator brush and the other for the brush carrier rod. Both wiper devices are positioned close to each other, and the rod wiper engages and seals against the side wall of the carrier rod, approximately midway between the rod ends. Thus, lower portions of the rod are exposed to the mascara product which is in the container, and the cleanliness of this rod portion depends on the efficacy of  
15 the wiper device. If the wiper deteriorates or loses elasticity, the carrier rod can become smudged and cause a messy operation.

In U.S. Patent 5,765,574 a mascara sampler device is disclosed that does not effect a doctoring of the product being removed from the container but does provide a considerable simplification of structure and economy of manufacture which at the same time overcoming  
20 other disadvantages of the 1994 patent. It is applicable to small sampling quantities, but its construction does not favor extended use.

Applicant's U.S. Application Serial No. 08/990,977, identified above and incorporated herein discloses a mascara dispenser where a shroud or separator member is provided with fixed interior doctoring edges or masks that have variously-shaped openings for the applicator  
25 rod and brush to pass through, for the purpose of controlling the amount of product which

is brought out by the brush. This represents on sample method of accomplishing the desired control. Also, dependence on simultaneous seals at different locations but with a single movement could result in manufacturing and assembly problems involving various components. Since the rod portion of the applicator is never in contact with mascara, no  
5 wiping of the rod is necessary. However, there is a limited extension of the rod in product below the separator. This may require an usually long spring wound brush.

Other patents of interest are 3,214,782; 4,810,122; 5,349,972; 4,194,848; 5,190,389; 5,490,737; and, 5,324,128.

Other prior patented devices also suffered from poor sealing, with the result that liquid  
10 product could leak from the container and soil surrounding articles. If a user were to be careless in the replacement of the applicator of these prior devices, such leakage would be very likely to occur.

A significant disadvantage of the various patented applicator constructions lies in the fact that the applicator stick or rod was exposed, at least in part, to the reservoir containing  
15 the cosmetic substance. As a consequence, the rod became coated with the material, giving rise to inadvertent soiling of the hands, or of clothing, etc. Little attention to this problem has been given, as far as can be determined from known prior art devices.

Additionally, other prior devices are unable to conveniently provide, using the same applicator, a combing action after the application of the mascara product. Often it is  
20 necessary to "dress down" the applied mascara, and users resort to a separate brush for this purpose, which can be inconvenient.

### SUMMARY OF THE INVENTION

The above drawbacks of prior mascara container and dispenser devices are obviated by the present invention, and one object of the invention is to provide an improved mascara container and dispenser which provides a better control and doctoring of the container contents when the brush or applicator is being removed for use.

A further object of the invention is to provide an improved container and dispenser as above characterized, wherein unique means are provided to enable a convenient combing action of the eyelashes to be carried out by the same applicator, after the application of the mascara.

10 An additional object of the invention is to provide an improved container and applicator wherein one section of the brush is wiped relatively clean and usable as a comb, whereas a sufficient quantity of the product is delivered to another section of the brush, all being accomplished with the single withdrawal movement of the applicator from the bottle.

15 Another object of the invention is to provide an improved container and applicator device as above set forth, which is especially simple in its structures while at the same time being leakproof and spillproof.

20 Another object of the invention is to provide an improved mascara container and dispenser of the kind indicated, wherein the applicator rod is largely isolated from the cosmetic material, thereby minimizing undesirable accumulation of the material on the rod per se. With such an arrangement, most of the cosmetic material is confined to the applicator brush, as intended. Inadvertent soiling of the hands or clothing from contact with the rod is thus minimized.

25 Yet another object of the invention is to provide an improved mascara container and dispenser as above set forth, wherein the cosmetic material in the container is isolated from the outside when the applicator rod is in place, minimizing leakage as noted above, and also

minimizing contact with air, which might tend to dry out the material.

Still another object of the invention is to provide an improved mascara dispenser device as above characterized, which is especially economical to produce.

5 A still further object of the invention is to provide an improved mascara dispenser in accordance with the foregoing, which is small and compact as well as being reliable in its operation at all times.

A still further objection of the invention is to provide an improved mascara dispenser device in accordance with the foregoing, which is especially economical to produce.

10 Yet another object of the invention to provide an improved mascara dispenser as above characterized, which is small and compact as well as being reliable in its operation at all times.

15 An additional important object of the invention is to provide a container and dispenser as above outlined, wherein improved sealing is had, especially in connection with liquid product, and wherein such sealing does not deteriorate during an extended use of the dispenser.

A feature of the invention is the provision of sealing means which is yieldable to a degree, enabling manufacturing tolerances to be made more liberal without adversely affecting results.

20 In accomplishing the above objects, the invention provides a mascara container and dispenser device comprising a bottle for holding said cosmetic substances, said bottle having an externally threaded neck of reduced diameter, molded plastic screw cap applicator comprising a body which is screwed on said bottle neck, said screw cap body having a transverse sealing wall disposed intermediate its ends, having an applicator rod extending downward from the transverse sealing wall with the upper half portion of said rod forming  
25 an annular cavity in the underside of the screw cap body, which cavity is occupied by the



reduced neck of the bottle. The lower half portion of the applicator rod projects from the bottom of the screw cap body and carries at its lower extremity an applicator brush that is connected at a junction to the lower extremity of the rod. A cup-shaped separator member extends through and is carried by the reduced neck portion of the bottle. The separator member encloses an intermediate portion of the applicator rod and has a unique doctoring and sealing means which engages the applicator rod and provides superior control of the amount of the cosmetic substance that is to be withdrawn by different portions of the brush so as to enable a combing action to be also carried out thereby, as well as improved sealing of the container. The control or doctoring of the applicator is accomplished by unique webs in the separator member, which are movable between raised doctoring positions and lower, sealing positions. Such webs determine "clean" and "product carrying" portions of the brush and when the webs are in their lower positions, they can be engaged by a sealing bead on the applicator member. The separator member also has a depending annular skirt that projects downward from the doctor means, in one embodiment of the invention, such skirt carrying horizontally extending wings which are engageable under the bottle internal shoulder to retain the member in an assembly forced position in the neck. In addition, the separator member has an upper flange portion that is engageable with the bottle lip and also with the transverse sealing wall of the screw cap body at the time that the applicator rod is replaced in the bottle by the user, thereby to enclose and isolate the applicator rod and prevent its contamination.

In another embodiment, the invention provides a mascara dispenser device comprising a bottle for holding the cosmetic substance, the bottle having an externally threaded neck of reduced diameter and a molded plastic screw cap applicator comprising a body which is screwed on the bottle neck. The screw cap body has a transverse sealing wall disposed intermediate its ends, and an applicator rod extending downward from the transverse sealing wall, with the upper half portion of the rod forming an annular cavity in the underside of the

screw cap body, which cavity is occupied by the reduced neck of the bottle. The lower half portion of the applicator rod projects from the bottom of the screw cap body and carries at its lower extremity a applicator brush that is connected at a junction to the lower extremity of the rod. A cup-shaped separator member or shroud extends through and is carried by the  
5 reduced neck portion of the bottle. The separator member encloses the lower projection half portion of the applicator rod and has an annular doctor blade which surrounds the junction between the applicator rod and the brush, and controls the amount of cosmetic substance that is withdrawn by the brush.

The separator member also has a depending annular skirt that projects downward from  
10 the doctor blade. The lower extremity of the applicator rod has an annular sealing surface and the doctor blade has a sealing bead that is comparable with the annular sealing surface of the rod to seal the interior of the separator member from the contents of the bottle when the applicator is screwed onto the bottle. In addition, the separator member has an upper lip portion that is engageable with the transverse sealing wall of the screw cap body at the same  
15 time that the applicator rod seals against the sealing bead of the doctor blade, thereby to enclose and isolate the applicator rod and prevent its contamination.

### BRIEF DESCRIPTION OF THE DRAWINGS

In the accompanying drawings, illustrating several embodiments of the invention:

FIG. 1 is an axial section view (enlarged) of one preferred embodiment of the improved mascara container and applicator of the invention;

5 FIG. 2 is a fragmentary axial sectional view of the separator member and applicator of FIG. 1, still further enlarged and taken on the line 2-2 of FIG. 3;

FIG. 3 is a top plan view of the separator member and applicator portions of the device shown in FIG. 2;

10 FIG. 4 is a view like that of FIG. 3 but showing the action of the doctor webs or wipers of the invention when the applicator brush is being removed;

FIG. 5 is an axial sectional view of the separator member or shroud of the device, taken on the line 5-5 of FIG. 6 and showing a variation of the doctoring means thereof;

FIG. 6 is a top plan view of the separator member of FIG. 5;

15 FIG. 7 is an axial sectional view, like that of FIG. 5, of the separator member of the invention but showing yet another embodiment of the invention. This view is taken on the line 7-7 of FIG. 8;

FIG. 8 is a top plan view of the separator member of FIG. 7;

20 FIG. 9 is an axial sectional view like that of FIG. 7 taken on the line 9-9 of FIG. 10 and showing still another embodiment of the invention;

FIG. 10 is a top plan view of the separator member of FIG. 9;

FIG. 11 is a fragmentary axial sectional view of the separator member and applicator rod, illustrating a still further embodiment of the invention;

25 FIG. 12 is a view like that of FIG. 1 but illustrating more clearly the sealing action of the applicator and separator or shroud components.

Figures representing a second embodiment of the invention are noted with the letter "A" attached to the Figure designation and are as follows:

FIG. 1A is an axial sectional view of the dispensing device in its closed condition;

FIG. 2A is a top plan view of the device of FIG. 1A;

5 FIG. 3A is an axial sectional view of the molded plastic one-piece separator member of the dispensing device;

FIG. 4A is a top plan view of the molded separator member;

FIG. 5A is a top plan view of the molded separator device according to another embodiment of the invention;

10 FIG. 6A is a top plan view of a molded separator device according to still another embodiment of the invention;

FIG. 7A is a top plan view of a molded separator device according to yet another embodiment of the invention; and,

15 FIG. 8A is a top plan view of a molded separator device according to a still further embodiment of the invention.

**CLAIMS**

20      What is claimed is:

1.      A container and dispensing device for mascara and like cosmetic substances,  
comprising in combination:

         a bottle for holding said cosmetic substances, said bottle having an externally  
threaded neck of reduced diameter;

25              a molded plastic screw cap applicator comprising a body which is screwed on

said bottle neck, said screw cap body having internal threads engaged with the threaded bottle neck and having a transverse sealing wall disposed above said internal threads;

5       said applicator body having an applicator rod extending downward from its transverse sealing wall and said applicator rod having an upper portion which forms an annular cavity in the underside of the screw cap body, which cavity is occupied by the reduced neck of the bottle;

10       the lower half portion of said applicator rod projecting from the bottom of the screw cap body and carrying at its lower extremity an applicator brush that forms a junction at said lower extremity;

a cup-shaped separator member extending through and carried by the reduced neck portion of the bottle;

15       said separator member enclosing the lower projecting half portion of the applicator rod and having an annular doctor blade which surrounds the said junction between the applicator rod and brush and which controls the amount of cosmetic substances that are to be withdrawn by the brush;

said separator member having a depending annular skirt that projects downward from the doctor blade thereof;

20       said lower extremity of the applicator rod having an annular sealing surface and said doctor blade having a sealing bead that is cooperable with said annular sealing surface to seal the interior of the separator member from the contents of the bottle when the applicator is screwed onto the bottle; and,

25       said separator member having an upper lip portion that is engageable with the transverse sealing wall of the screw cap body at the time that the applicator rod seals against the said sealing bead.

2. A container as set forth in Claim 1, wherein the separator member is constituted as a one-piece molded plastic component.
3. A container dispenser as set forth in Claim 1, and further including:  
a retainer means on the bottle and separator member, holding the separator  
5 member captive and fixed in the bottle.
4. A container and dispenser as set forth in Claim 3, wherein said retainer means comprises an internal shoulder of the bottle, formed by the reduction in diameter of the external threaded neck of the bottle.
5. A container and dispenser as set forth in Claim 4, wherein the retainer means further  
10 comprises a plurality of resilient wing formations on the exterior of the separator member, engageable with the internal shoulder of the bottle.
6. A container and dispenser as set forth in Claim 1 wherein the annular doctor blade of the separator member has an inner periphery of square configuration.
7. A container and dispenser as set forth in Claim 1, wherein the annular doctor blade  
15 of the separator member has an inner periphery of star-shaped configuration.
8. A container and dispenser as set forth in Claim 1, wherein the annular doctor blade of the separator member has an inner periphery of scalloped configuration.
9. A container and dispenser as set forth in Claim 1, wherein the annular doctor blade of the separator member has an inner periphery of serrated configuration.
- 20 10. A container and dispenser as set forth in Claim 1, wherein the annular doctor blade of the separator member has an inner periphery of multiple fine scallops.
11. A container and dispenser as set forth in Claim 5, wherein the resilient wing formations have camming surfaces which, when experiencing forces, can flatten the wings so as to enable the separator member to be forced into the bottle past the neck of reduced  
25 diameter thereof.

12. A container and dispenser as set forth in Claim 1, wherein the transverse sealing wall of the screw cap applicator is located in the transverse wall of said shroud.

13. A container and dispenser device for mascara and like cosmetic substance, comprising in combination:

5           a bottle for holding a cosmetic substance, said bottle having a neck and a shroud axially-disposed inside the neck, said shroud having a bottom end portion located in the bottle and having a flat transverse wall disposed in said bottom end portion at substantially 90° to the axis of the shroud, said flat transverse wall having an opening communicating with the interior of the bottle, and said shroud comprising  
10           at its bottom end portion a depending open-bottom skirt which defines a drainage space that also communicates with the interior of the bottle;

          a plastic cap for the bottle, said cap having an applicator rod that extends into the shroud when the cap is assembled to the bottle;

          said applicator rod having a brush extending from its remote end and through  
15           the opening in the transverse wall of the shroud, and into the interior of the bottle when the cap is assembled to the same;

          said applicator rod being elongated, having a peripheral outer surface and having a flat, planar end wall from which said brush extends;

          squarely abutting sealing means at the said opening in the transverse wall of  
20           said shroud and including said planar end wall of the applicator rod, sealingly closing off the interior bottom from the peripheral outer surface of the applicator rod, so as to positively prevent cosmetic substance from coming into contact with the peripheral surface of the applicator rod when the cap is assembled to the bottle; and

          said skirt of the shroud being adapted to receive an upper part of said brush to  
25           foster retention of doctored mascara in the skirt for coating the brush as the latter is



being withdrawn from the bottle.

14. A container and dispensing device as set forth in Claim 13, wherein:

said applicator rod comprises a solid cylinder and the end wall thereof is substantially perpendicular to the axis of the cylinder.

- 5 15. A container and dispensing device as set forth in Claim 14, wherein:

said transfer wall of the shroud is substantially parallel to the end wall of said solid cylinder, and spaced a finite distance therefrom.

16. A container and dispensing device as set forth in Claim 15, wherein:

10 said sealing means comprises an upstanding bead on the transverse wall of the shroud, that is engaged by the end wall of the cylinder.

17. A container and dispensing device for mascara and like cosmetic substances, comprising in combination:

a bottle for holding said cosmetic substances, said bottle having an externally threaded neck of reduced diameter;

- 15 a molded plastic screw cap applicator comprising a body which is screwed on said bottle neck, said screw cap body having internal threads engaged with the threaded bottle neck;

said applicator body having an applicator rod extending downward from the bottom of the body;

- 20 an intermediate portion of said applicator rod forming with the screw-cap body an annular cavity which is occupied by the reduced neck of the bottle;

a lower portion of said applicator rod projecting downward from the bottom of the screw cap body and carrying at its lower extremity an applicator brush that forms a junction at said lower extremity;

- 25 a cup-shaped separator member disposed in and carried by the reduced neck

portion of the bottle;

said separator member enclosing said intermediate portion of the applicator rod and said member having a doctor means which controls the amount of cosmetic substances that are to be withdrawn by the brush;

5           an upper portion of the applicator rod having an annular sealing surface and said separator member having a sealing means that is cooperable with said annular sealing surface of said upper portion of the applicator rod to seal the separator member to the applicator rod when said cap body is screwed onto the bottle;

10           said bottle neck having an annular sealing surface disposed above said internal threads and said separator member having an upper lip portion that is engageable with the said annular sealing surface of the bottle neck to effect a seal therewith;

said doctor means of the separator member comprising a sector-shaped web;

hinge means connecting said sector shaped web to the separator member;

15           said doctor means comprising an additional web and hinge means therefor, both of said webs being disposed oppositely each other and having free curved edges which are spaced close to the inner walls of the separator member; and,

said webs being offset vertically from each other and being located in different vertical planes.

18. A container and dispensing device as set forth in Claim 17, wherein the webs have portions which overlap each other.

19. A container and dispensing device as set forth in Claim 17, wherein the webs are connected to the separator member by living hinges.

20. A container and dispensing device for mascara and like cosmetic substances, comprising in combination:

25           a bottle for holding said cosmetic substances, said bottle having an externally

threaded neck of reduced diameter;

a molded plastic screw cap applicator comprising a body which is screwed on said bottle neck, said screw cap body having internal threads engaged with the threaded bottle neck;

5           said applicator body having an applicator rod extending downward from the bottom of the body;

an intermediate portion of said applicator rod forming with the screw-cap body an annular cavity which is occupied by the reduced neck of the bottle;

10           a lower portion of said applicator rod projecting downward from the bottom of the screw cap body and carrying at its lower extremity an applicator brush that forms a junction at said lower extremity;

a cup-shaped separator member disposed in and carried by the reduced neck portion of the bottle;

15           said separator member enclosing said intermediate portion of the applicator rod and said member having a doctor means which controls the amount of cosmetic substances that are to be withdrawn by the brush;

20           an upper portion of the applicator rod having an annular sealing surface and said separator member having a sealing means that is cooperable with said annular sealing surface of said upper portion of the applicator rod to seal the separator member to the applicator rod when said cap body is screwed onto the bottle;

said bottle neck having an annular sealing surface disposed above said internal threads and said separator member having an upper lip portion that is engageable with effect a seal therewith;

said doctor means of the separator member comprising a sector-shaped web;

25           hinge means connecting said sector-shaped web to the separator member;

said doctor means comprising an additional web and hinge means therefor, both of said webs being disposed oppositely each other and having free curved edges which are spaced closed to the inner walls of the separator member; and,

said webs having undercut edges which overlap each other.

- 5 21. A container and dispensing device for mascara and like cosmetic substances, comprising in combination:

a bottle for holding said cosmetic substances, said bottle having an externally threaded neck of reduced diameter,

10 a molded plastic screw cap applicator comprising a body which is screwed on said bottle neck, said screw cap body having internal threads engaged with the threaded bottle neck;

said applicator body having an applicator rod extending downward from the bottom of the body;

15 an intermediate portion of said applicator rod forming with the screw-cap body an annular cavity which is occupied by the reduced neck of the bottle;

a lower portion of said application rod projecting downward from the bottom of the screw cap body and carrying at its lower extremity an applicator brush that forms a junction at said lower extremity;

20 a cup-shaped separator member disposed in and carried by the reduced neck portion of the bottle;

said separator member enclosing said intermediate portion of the applicator rod and said member having a doctor means which controls the amount of cosmetic substances that are to be withdrawn by the brush;

25 an upper portion of the applicator rod having an annular sealing surface and said separator member having a sealing means that is cooperable with said annular

sealing means that is cooperable with said annular sealing surface of said upper portion of the applicator rod to seal the separator member to the applicator rod when said cap body is screwed onto the bottle;

5       said bottle neck having an annular sealing surface disposed above said internal threads and said separator member having an upper lip portion that is engageable with the said annular sealing surface of the bottle neck to effect a seal therewith;

      said doctor means of the separator member comprising a sector-shaped web;

      hinge means connecting said sector-shaped web to the separator member;

10       said web comprising a resilient bottom wall of the separator member, said wall having an opening through which the applicator rod extends; and,

      said web comprising a circular segment extending through an arc of more than 180 degrees.

22. A container and dispensing device for mascara and like cosmetic substances, comprising in combination:

15       a bottle for holding said cosmetic substances, said bottle having an externally threaded neck and reduced diameter;

      a molded plastic screw cap applicator comprising a body which is screwed on said bottle neck, said screw cap body having internal threads engaged with the threaded bottle neck;

20       said applicator body having an applicator rod extending downward from the bottom of the body;

      an intermediate portion of said applicator rod forming with the screw-cap body an annular cavity which is occupied by the reduced neck of the bottle;

25       a lower portion of said applicator rod projecting downward from the bottom of the screw cap body and carrying at its lower extremity an applicator brush that forms

a junction at said lower extremity;

a cup-shaped separator member disposed in and carried by the reduced neck portion of the bottle;

5 said separator member enclosing said intermediate portion of the applicator rod and said member having a doctor means which controls the amount of cosmetic substances that are to be withdrawn by the brush;

10 an upper portion of the applicator rod having an annular sealing surface and said separator member having a sealing means that is cooperable with said annular sealing surface of said upper portion of the applicator rod to seal the separator member to the applicator rod when said cap body is screwed onto the bottle;

said bottle neck having an annular sealing surface disposed above said internal threads and said separator member having an upper lip portion that is engageable with the said annular sealing surface of the bottle neck to effect a seal therewith;

15 said doctor means of the separator member comprising a sector-shaped web; hinge means connecting said sector-shaped web to the separator member;

said doctor means comprising an additional web and hinge means therefor, both of said webs being disposed oppositely each other and having free curved edges which are spaced close to the inner walls of the separator member; and,

20 means on said screw cap applicator, engageable and cooperable with said webs for effecting a seal therewith when the screw cap applicator is screwed on said bottle neck.

23. A container and dispensing device comprising, in combination:

a bottle and screw cap applicator having a brush, said applicator extending through the neck of the bottle;

25 a hollow shroud member in the bottle neck;

a C-shaped wiper web having a flat side and having a hinge for mounting the web for arcuate movement in the shroud, the shape of said web providing a free space between the web and all of the shroud, through which space the applicator passes to be wiped by the web;

5           said web being adapted to occupy a raised wiping position against the brush of the applicator and lower sealing position wherein the flat side thereof is sealingly engaged with the said applicator.

24. A container and dispensing device comprising, in combination:

10           a bottle and screw cap applicator having a brush, said applicator extending through the neck of the bottle;

          a hollow shroud member in the bottle neck;

          a wiper web arcuately moveable in the shroud, between which web and a wall of the shroud the applicator passes to be wiped by the web;

15           said web being adapted to occupy a raised wiping position against the brush of the applicator and lowered sealing position where it is sealingly engaged with the said applicator, wherein a space is provided for passage of product between a wall of the shroud member and edge portions of the web, the size and shape of said passage being a function of the configuration of the web and controlling the amount of product flowing through said passage.

20   25. A container and dispensing device as set forth in Claim 23, and further including an annular sealing bead on the applicator, for engagement with the flat side of said wiper web when the latter is in its lowered positions, thereby to effect a seal with said web.

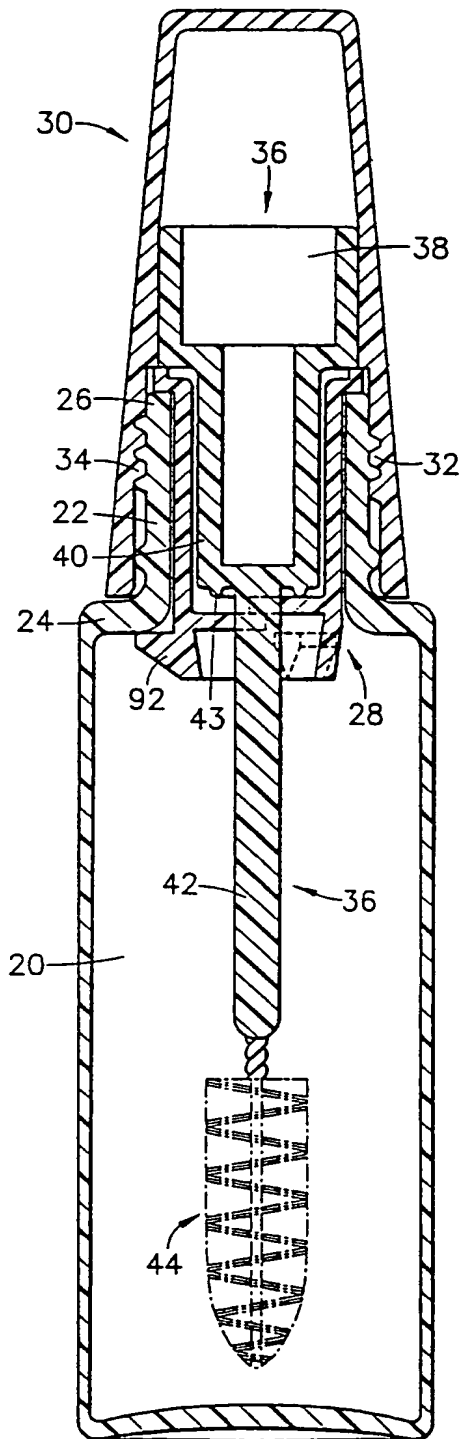


FIG.1

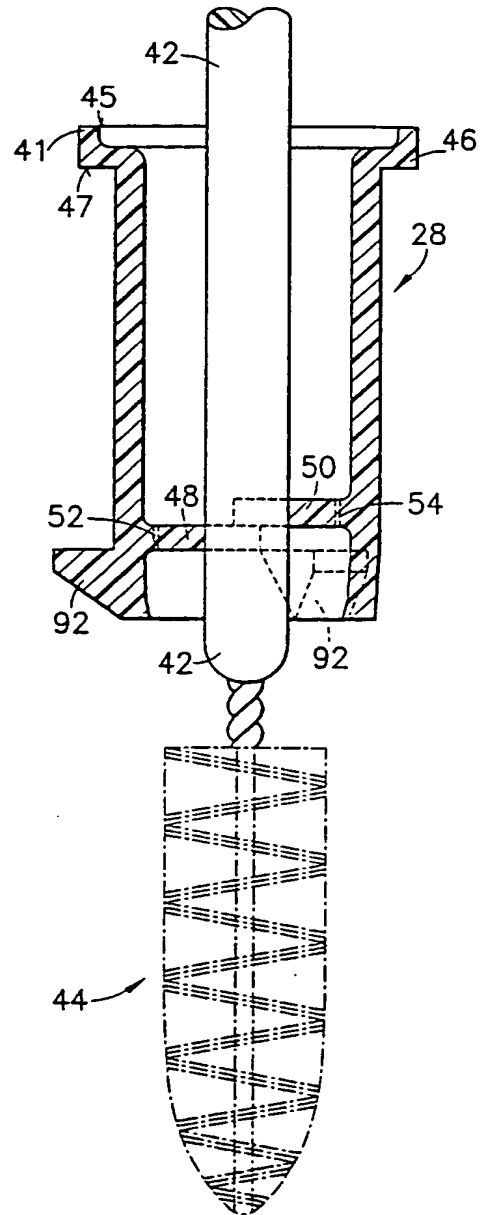


FIG.2



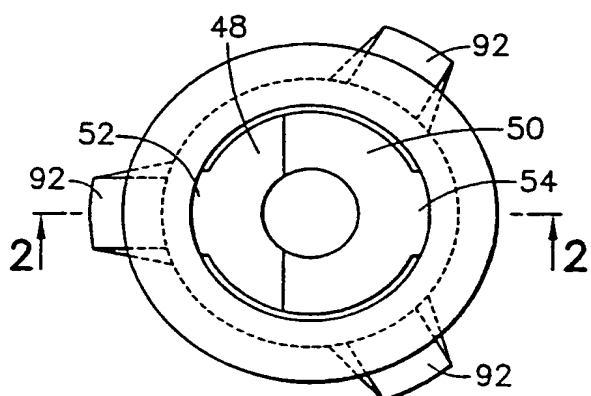


FIG. 3

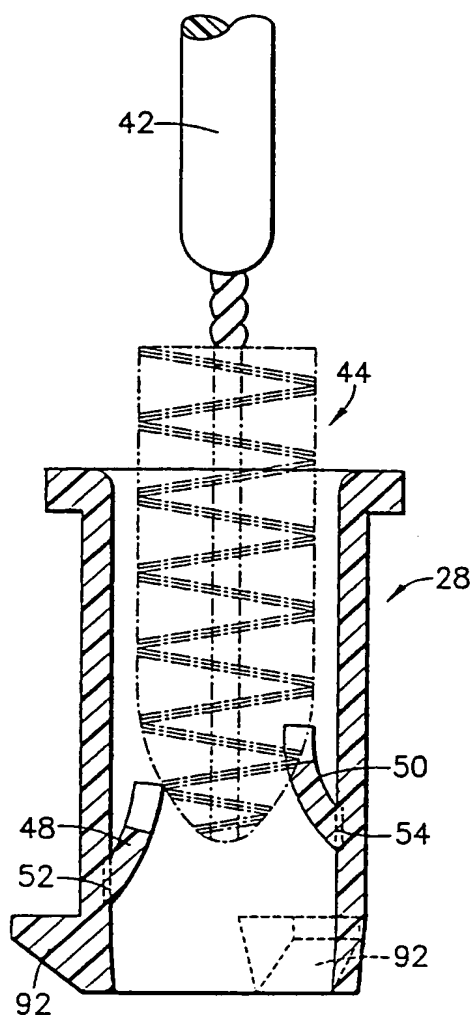


FIG. 4

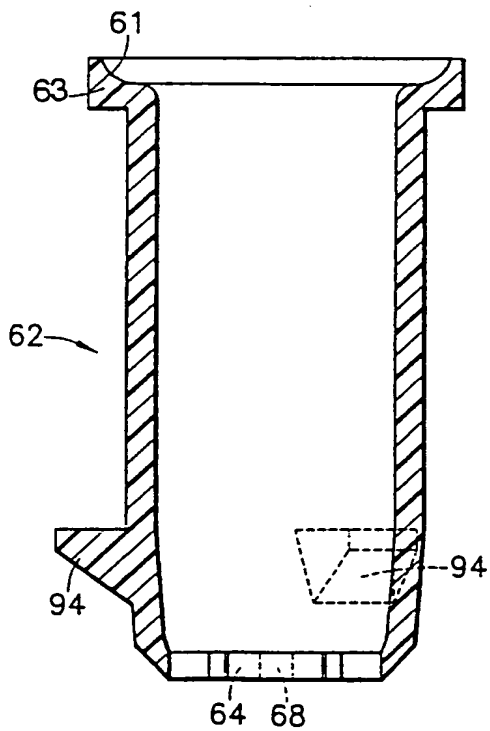


FIG. 5

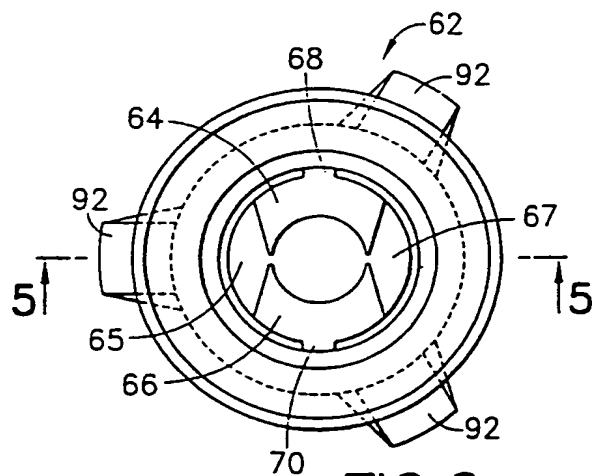


FIG. 6

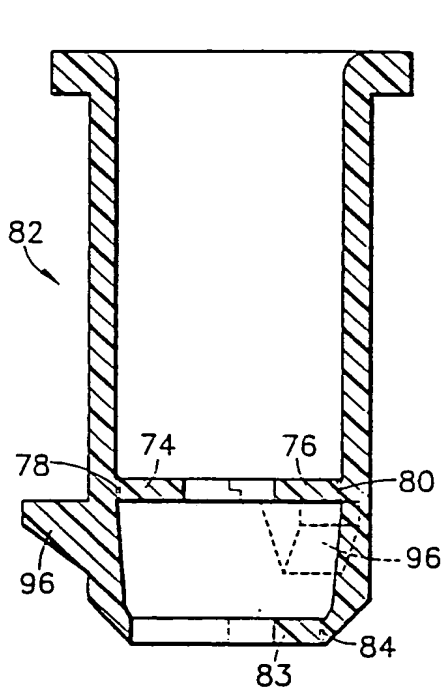


FIG. 7

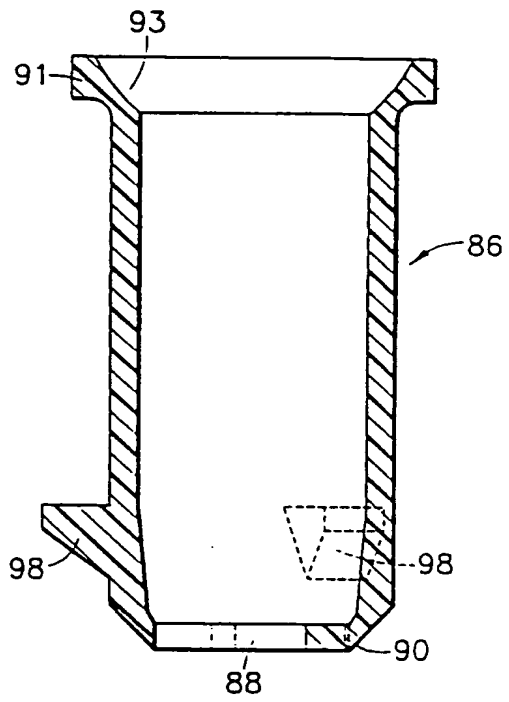


FIG. 9

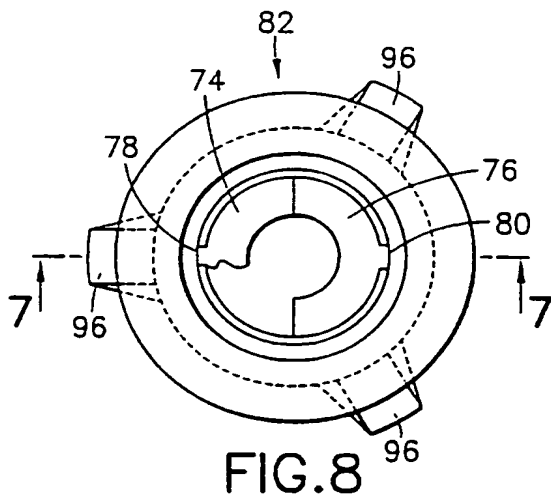


FIG. 8

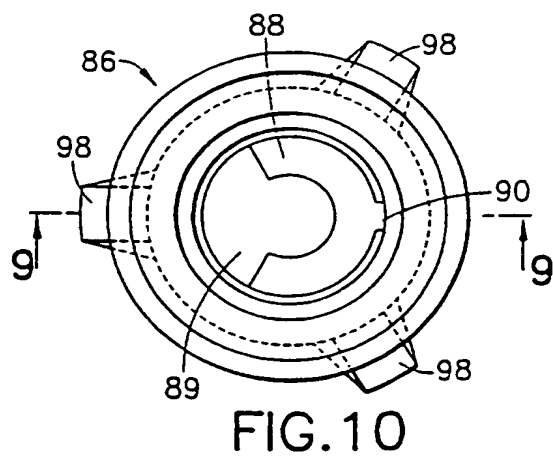


FIG. 10

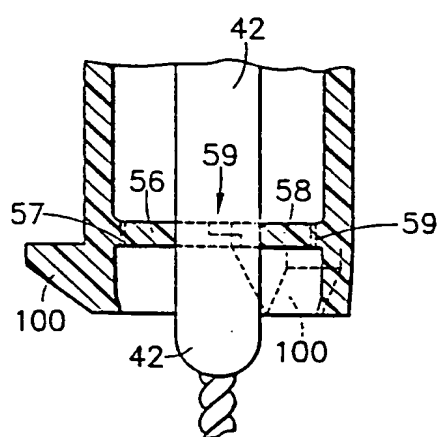


FIG. 11

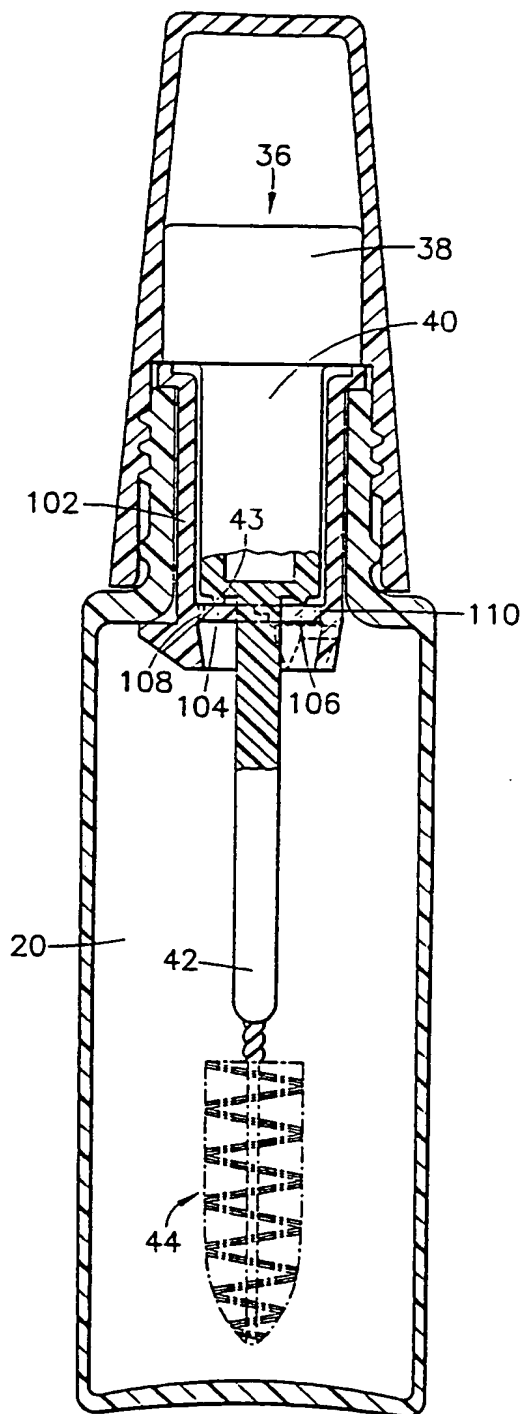
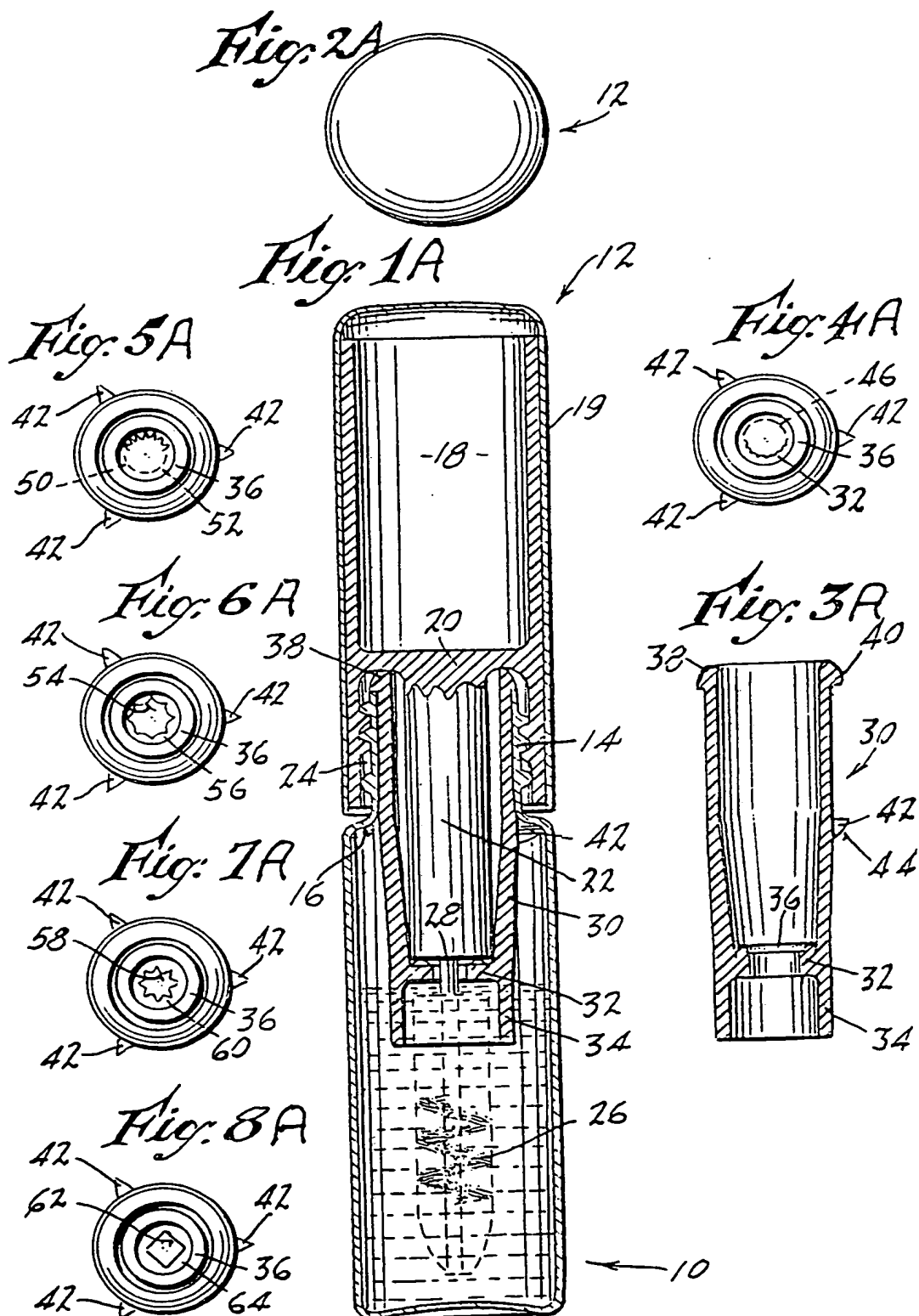


FIG. 12



## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US98/26633

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) : A45D 40/26

US CL : 132/218; 401/122

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 132/218, 313, 317, 320; 401/121, 122, 126, 129

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 4,470,425 A (GUERET) 11 September 1984, entire document.	1-16
A	US 5,324,128 A (GUERET) 28 June 1994, entire document.	1-16
A	US 4,810,122 A (COLE) 07 March 1989, Figs. 4b, 7, 8 and 11.	6-10
A	US 5,190,389 A (VASAS) 02 March 1993, entire document.	17-25
A, P	US 5,697,720 A (LHUISSET) 16 December 1997, entier document.	17-25

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:	*T	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
*A* document defining the general state of the art which is not considered to be of particular relevance	*X*	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
*B* earlier document published on or after the international filing date	*Y*	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
*L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	*A*	document member of the same patent family
*O* document referring to an oral disclosure, use, exhibition or other means		
*P* document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search

15 MARCH 1999

Date of mailing of the international search report

15 APR 1999

Name and mailing address of the ISA/US  
Commissioner of Patents and Trademarks  
Box PCT  
Washington, D.C. 20231

Facsimile No. (703) 305-3230

Authorized officer

TODD E. MANAHAN

Telephone No. (703) 308-2695